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UNUSUAL MANIFESTATION OF LYMPHATIC LEUKAEMIA

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Acute lymphatic leukæmia is not a common disease. In the wards of the Medical College Hospitals, Calcutta, with 900 beds during the period of twenty years (1918-1937) twelve cases of lymphatic leukæmia were admitted (De and Tribedi, 1938). It is commonest in childhood, the incidence steadily declining from the age of eight upwards. In adults the chronic disease may terminate with an acute crisis. As regards symptomatology, it presents quite a wide variety. The onset is usually abrupt with fever, rigors, prostration, aching pain in the limbs, headache, hæmorrhages beneath the skin or in the mouth. Stomatitis, with ulceration of the gums and fauces, purpura in any part of the body and a rapidly progressive anæmia, are all present. At first lymph glands may not be definitely enlarged, but in the later stages they become obviously so. The cervical glands are the first to be affected. A hæmorrhagic pleural effusion is a common complication (Whitby, 1937). In some cases the picture starts with an acute sore throat followed by angina. Poynton and Moncriff (1929) described cases of subcutaneous nodules in the scalp with glandular enlargement and mononucleosis, and Poynton and Lightwood (1932) and De and Tribedi (1938) described cases of acute lymphatic leukæmia simulating acute rheumatism with multiple joint involvement. But a case of lymphatic leukæmia showing the manifestations of acute urinary obstruction as described below is indeed very rare. In consideration of this we thought worth publishing the following case:

The patient, aged 18 years, Hindu, male, single with no occupation, came to the emergency room of the Calcutta Medical College Hospital with acute retention of urine at 9 p.m. on 19-10-42. This was relieved by the passing of a soft catheter. Next morning *i.e.*, 12 hours after the first occurrence he had to be relieved by catheterisation again. The patient came back to the emergency room again and was admitted 24 hours after the second occurrence of retention of urine.

Patient's general condition was low on admission. Heart sounds were feeble. There was nothing abnormal in lungs and the spleen was palpable. A paraphimosis needed dorsal slitting of the foreskin. A soft catheter was passed when 8 ozs. of urine came out. Patient had a little oozing from the raw surface of the penis. 12 hours after his admission, it was found that the general condition was still worse, pulse very feeble with cold and clammy extremities. A catheter had to be given and 10 ozs. of blood stained urine came out and 3 hours after it became necessary to pass the catheter again when pure blood came out. Patient became pulseless. Blood transfusion was given 2 hours later. Patient died on the same day, *i.e.*, 65 hours after he was first seen. Blood film examination showed no malarial parasite; on the other hand it showed the presence of large number of white blood cells, majority of which were lymphocytes (85 per cent). A previous history of malaria was present.

Postmortem done 12 hours later revealed the following:

Peritoneal cavity contained 1 oz. of straw coloured fluid. Abdominal lymph nodes were enlarged, they were discrete, firm and moderately enlarged; on section they were found to be firm and moist and in colour pinkish grey. The spleen weighed 520 gms. It was firm in consistence with thick capsule. The cut surface was buff coloured. The liver weighed 1,390 grms. In the right kidney there was a hæmorrhagic spot. Capsule of the kidney stripped easily. Pericardial cavity contained 1 oz. of blood-stained fluid. Underneath the pericardium there were small hæmorrhagic spots. Similar hæmorrhagic spots were found on the right lung surface and on the cut surface of both the lungs. The bladder showed extensive hæmorrhage in the submucous and muscular coats. Hæmorrhagic spots were also present in the gastric mucosa.

Microscopical examination showed the following:

Heart—Hæmorrhages occurred over scattered areas separating the muscle fibres (Fig. 1); in one place the muscle fibres were undergoing atrophy. The other fibres showed fatty change. Capillaries were very prominent. Within them were present many lymphocytes. In the pericardial fat it showed a lymphocytic collection. *Liver*—The parenchyma showed fatty change. Blood vessels, extending from portal area to central vein of the lobules were dilated and engorged. In capillaries and in the portal tract were many lymphocytes. *Suprarenal*—Blood vessels were congested and there were scattered areas of hæmorrhage specially towards the capsule. Cells of the cortex had been widely separated by the congested blood vessels. In the medulla there were large collections of lymphocytes. *Intestine*—In the submucosa there were areas of hæmorrhage, congested blood vessels which were full of lymphocytes. The mucosa showed marked degeneration probably postmortem. *Kidney*—The glomeruli were larger in size and congested; capillaries in the interstitial tissue contained many lymphocytes. *Bladder*—The bladder wall showed extensive hæmorrhage in the submucous and muscular coat involving a very large part of the organ. No lining epithelium limiting the hæmorrhage area could be seen (Fig. 2). *Lungs*—The lungs were congested and the alveoli were filled up with red blood cells. Blood vessels contained many W. B. C's, many of the latter being lymphocytes and large mononuclear cells. *Lymph gland*—The outline of the primary follicles were not very prominent and had almost merged with the rest of the cortex (Fig. 3). The germinal centres were very prominent (Fig. 4) and made up of many large cells with big cytoplasmic masses with large pale vesicular nuclei (probably the parent cells of lymphoblasts) while others of comparatively smaller size with hyperchromatic nuclei and eosin stained cytoplasm. Also a few mature lymphocytes were present (Fig. 5). In the general cortex most of the cells were of mature lymphocytes, some were lymphoblasts with dark stained vesicular nuclei and scattered here and there were cells with eosin granules in the cytoplasm. Capillaries of the blood vessels in the cortex were congested. In the medullary region sinuses were dilated and filled up with cells of the nature found in the germinal centres (Fig. 5). *Spleen*—The Malpighian corpuscles were fewer in number. Their germ centres showed the same change as in the lymph gland. Around the germ centres were mature lymphocytes and lymphoblasts. The splenic sinuses were dilated and almost empty. Splenic cords were very cellular and congested and showed many large mononuclear cells with vesicular nuclei. Endothelial cells were found to be swollen. Within splenic sinuses also were seen cells like lymphoblasts, mature lymphocytes and occasional large cells with vacuolated cytoplasm.

Discussion

The interest of this case lies in the clinical features. This was a case of acute lymphatic leukæmia. It is said that such cases come with symptoms of fever, rigor, prostration, pain in the back and limbs and hæmorrhage from mucous membrane, hæmorrhage beneath the skin or acute sore throat; sometimes with acute dyspnœa resulting from a large collection of sero-sanguinous fluid in the pleural cavities. Rare clinical features resembling that of acute rheumatism has been also noted. The case under review came under observation with symptoms of acute urinary retention. Until the time of opening of the bladder we were in the dark as to the causation of death. At that time the 85 per cent lymphocytic count was not remembered. The slide was luckily kept and on re-examination it showed many distinct immature type of lymphocytes. But for this little bit of very important clue we would have totally missed the condition. The urinary obstruction appeared to be due to a condition of large hæmatoma of the bladder wall, which later on gave way. This accounts for the presence of blood in the later samples of urine which were obtained by catheterisation. Acute lymphatic leukæmia is common before the age of eight years and is uncommon between the age of 8 and the adolescent period (Whitby, 1937) and in our present case we find it occurring in unusual period, *viz.*, at the age of 18. Then again the enlargement of cervical glands are common features of this disease. But there was hardly any in this present case. Such cases as the present one where cardinal signs and symptomatology were absent can only be diagnosed in presence of facilities of routine laboratory tests and postmortem examinations.

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FIG. 1—Section from heart showing hæmorrhages and separation of muscle fibres and atrophy of some of them.

FIG. 2—Section from bladder wall showing hæmorrhages in the submucosa and muscular coat. Scattered blood cells are mostly lymphocytes.

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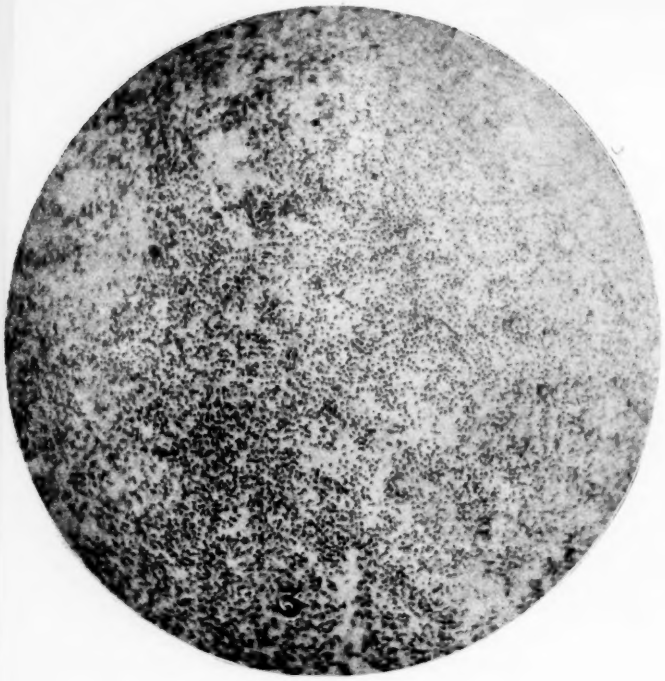

FIG. 3.

FIG. 4.

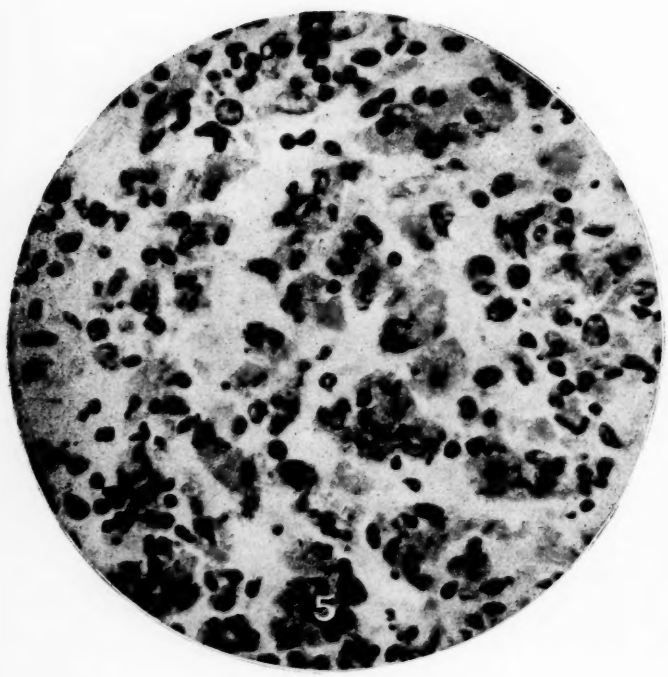

FIG. 5.

FIG. 3—Low power view of the general cortex of the lymph gland showing the uniform appearance and scarcity of primary follicle.

FIG. 4—Medium power view of primary follicle of the lymph gland showing prominence of the germinal centre due to the presence of large cells and almost submergence of the periphery with the general cortex.

FIG. 5—Same as Fig. 4 with higher magnification showing the different cells mentioned in the text.

LIVER EXTRACT IN ARSENICAL INTOLERANCE

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The liver plays an important role in dealing with poisonous substances absorbed in the system by combining with glycuronic acid and other substances and turning them into harmless compounds. This detoxicating function of the liver is very important from the point of view of prognosis and of observation on the improvement in the follow-up of a case and to avoid disasters during and after antisyphilitic treatment.

It is now an well-established fact that this detoxicating function is lowered in case of a damaged liver.

The formation of antibodies which combine with these poisonous substances or bacterial toxins to neutralise by a method which the body possesses for combating the poisons is termed by Persons (1935) "protective synthesis". This is a process whereby a substance which is of comparatively simple chemical structure is built up in the body into a complex product by which the poisonous properties of the original harmful substances are neutralised and excreted.

Cases of arsenical intolerance is commonly met with in venereal practice and not infrequently in general practice also where arsenical injections are given for different diseases, like bronchial asthma, various dermatitis, filariasis and other clinical conditions. In my experience in the Venereal Department of the Patna Medical College Hospital I have observed closely the antisyphilitic treatment in 557 cases. I have observed intolerance of varying intensity in 106 cases. 66 cases were mildly intolerant and had been already reported (Lahiri, 1942) while 40 cases showed graver symptoms. Of these 40 cases of grave arsenical intolerance, only six cases occurred in congenital syphilitics and 34 in acquired syphilitics. Liver function in the congenital cases developing grave arsenical intolerance has been found very much lowered and has been reported (Lahiri, 1942). Amongst the 34 cases of acquired syphilis developing grave intolerance, 15 had dermatitis, 8 had jaundice, 5 cases developed albuminuria and 6 had nitritoid crises.

Arsenical intolerance is found only in a negligible percentage of cases in which some important mechanism of the body must be at fault. Since the liver is the most important organ in the body which deals with poisonous substances like drugs, etc., absorbed in the body, it is quite likely that in cases of arsenical intolerance the liver function is at fault.

Among the chief liver poisons are arsenic and chloroform. Liver damage may be caused by spirochetal infection even without arsenic or other treatment. The damaging effect of syphilitic infection on the liver has been appreciated by pathologists for years. Numerous reports on autopsy studies are on record. Changes ranging from mildly degenerative alterations to syphilitic cirrhosis and gummatous condition of the liver are noticed. The hepatic failure is the underlying cause for withholding the treatment and consequently the syphilitic patients receive incomplete treatment. Since considerable function of the liver may be carried on even when 80 per cent of it is destroyed and especially so, if the destruction has been slow and gradual, many drugs may injure liver without immediate detection and the delayed toxic jaundice that follows arsenic treatment months after the injection, is an example.

One of the methods employed to measure the detoxicating function of the liver is by the amount of hippuric acid synthesised by the liver and excreted in urine after test doses of benzoic acid.

Quick (1931) was the first to make use of this test as a measure of the detoxifying mechanism of the liver in man. In normal individuals and in various pathological conditions the liver function has been determined by various workers such as Snell *et al* (1935), Boyce (1939), Wilson (1939) Bartles (1940), Schmidt *et al* (1941), Lucia and Aggler (1941), Haines *et al* (1941) and Lahiri (1942). They have all worked with the original method of Quick with some modifications.

Iragang (1937) stresses the importance of performing liver function tests during arsenic therapy. A patient whose liver is badly damaged by spirochæta pallida, does not tolerate antisyphilitic treatment when arsenicals are injected without finding out liver efficiency and the patient is prone to develop one of the dangerous symptoms of arsenical intolerance and may even die. It is a common practice to stop arsenical therapy in syphilis in a patient who has shown symptoms of arsenical intolerance and the patient is either not treated at all for the risk in giving arsenical injections again or sometimes treated with bismuth and mercury. Clark (1940) has observed that a diet rich in proteins protects the liver from injury by arsenic. No drug is known which has any definite beneficial action on the damaged liver. I tried in 1940 in the Venereal In-door of the Patna Medical College Hospital high protein diet in 9 cases of arsenical intolerance but unfortunately all my cases relapsed except one who used to have plenty of oranges and lime juice. McGuigan (1940) observed that after the liver is thus injured, there is no drug that will do any good. Arsenic treatment which frequently produces temporary relief is now believed to give such relief because it probably destroys a certain amount of the patient's liver, thus releasing some active principle which is beneficial to the patient.

Observations

The present investigation is to find out the liver function in syphilitics with grave symptoms of arsenical intolerance and 23 such cases have been recorded in the present paper. In all cases the kidney function has been ascertained and blood Wassermann done. The hippuric acid excretion in the urine was determined by a modification of Quick's method to test the detoxicating function of the liver. The record of 7 more cases of grave arsenical intolerance is also included which are

follow-up cases where no liver function test was done before starting the antisyphilitic therapy and after development of the symptoms of intolerance but they were discharged, cured and they returned after about one year without any complaint.

Hippuric acid excretion was determined in 23 cases of acquired syphilis showing normal kidney function and positive blood Wassermann before starting the antisyphilitic therapy (*vide* Table I).

TABLE I—SHOWING HIPPURIC ACID EXCRETION IN 23 CASES BEFORE ANTISYPHILITIC THERAPY (ALL SUBSEQUENTLY DEVELOPED ARSENICAL INTOLERANCE)

Case No.	*Subject*	*Community, Sex and Age*	*Vocation*	*Urine volume in c.c.*	*Hippuric acid excretion in gm.*
1	J.N.S.	H.M. 30	Clerk	204	2·31
2	S.	M.M. 29	Chauffeur	118	1·98
3	M. M.	M M. 46	Cultivator	224	0·37
4	N.P.S.	A-I.M. 28	Unemployed	108	0·41
5	K.N.	H.M. 38	Boatman	96	0·38
6	S.M.	M.M. 31	Electrical mistry	88	0·35
7	M.R.	H.M. 35	Cultivator	209	0·45
8	R.C.P.	H.M. 64	Clerk	118	2·11
9	J.N.	H.M. 35	Grocer	316	1·71
10	A.B.	H.F. 22	Housewife	402	2·21
11	B.S.	H.M. 45	Mason	108	1·82
12	B.P.S.	H.M. 31	Teacher	306	1·78
13	J.P.	H.M. 24	Student	318	1·42
14	S R.	H.M. 22	Rickshaw cyclist	205	0·88
15	S.B.	M.F. 28	Housewife	42	0·92
16	A.	M.F. 18	Do.	284	1·23
17	B	H.F. 22	Do.	92	0·86
18	M.L.	M M. 38	Vendor	128	1·32
19	H.M.	H.M. 23	Typist	112	2·14
20	H.R.S.	I-CH.M. 42	Clerk	302	2·04
21	C.S.P.	H.M. 19	Shopkeeper	324	1·86
22	S.K.	M.M. 18	Student	418	1·12
23	R.B.P.	H.M. 21	Student	304	0·69

N.B. Wassermann Reaction was positive in every case. Cases No. 2 to 5, 13 to 15 and 18 were clinically diagnosed as cases of arsenical jaundice and the rest as of arsenical dermatitis.

Of these 12 cases developed symptoms after the third injection of arsenic, 4 cases after the first, 3 cases after the fifth, 2 cases after the eighth and 2 cases after the tenth injections (*vide* Table II).

Hippuric acid excretion was determined in 23 cases after the symptoms had fully developed (*vide* Table III).

These patients were put on liver therapy. Liver extract equivalent to 500 gm. of fresh liver was given daily intramuscularly for a period ranging from 2 to 3 weeks in each case The appreciable improvement in the condition such as arrest of progress and in some gradual disappearance of symptoms could be noticed even from the 10th to 14th day of starting the liver therapy (*vide* Table IV). No noticeable improvement could be seen in some cases who were kept on liver by mouth. The total disappearance of the signs and symptoms of arsenical intolerance was from the third to the sixth week (*vide* Table V). The hippuric acid excretion was determined after the disappearance of the symptoms and again after three months just before restarting the antisyphilitic therapy (Table VI). The result of antisyphilitic treatment and excretion of hippuric acid three months after are shown in Table VII. Hippuric acid excretion in 7 follow-up cases of grave arsenical intolerance was determined 3 to 6 months after completing the two week's therapy with liver extract (injection of 500 gm. daily) and vitamin C (injection of 100 mgm. daily) and all were discharged cured (Table VIII). None of these 7 follow-up cases relapsed with the antisyphilitic therapy. Hippuric acid excretion was determined 3 months after the completion of the full course of arsenic and bismuth injections (Table IX).

No relapse of any of the symptoms of arsenical intolerance was noticed in any of the 23 cases of grave intolerance when the antisyphilitic therapy was reinstituted but the mild untoward symptoms noticed in one case were probably due to improperly sterilised distilled water used for dissolving the drug in giving intravenous injections. In all the cases blood Wassermann was done which was negative and cases were followed for one year

TABLE II—SHOWING RELATION BETWEEN THE TIME OF DEVELOPMENT OF ARSENICAL INTOLERANCE AND THE NUMBER OF ARSENIC INJECTIONS

	No. of cases developing arsenical intolerance after				
	1st. injection	*3rd. injection*	*5th. injection*	*8th. injection*	*10th. injection*
Dermatitis ..	3	9	2	—	1
Jaundice ..	1	3	1	2	1

TABLE III—SHOWING HIPPURIC ACID EXCRETION IN 23 CASES (SAME SERIES AS IN TABLE I) AFTER THE DEVELOPMENT OF ARSENICAL INTOLERANCE

Case No.	*Hippuric Acid excretion in gm.*
1	2·00
2	1·65
3	0·08
4	0·21
5	0·22
6	0·19
7	0·27
8	1·74
9	1·00
10	2·00
11	1·07
12	1·30
13	1·01
14	0·24
15	0·37
16	0·75
17	0·28
18	1·01
19	1·78
20	1·29
21	0·41
22	0·90
23	0·24

TABLE IV—SHOWING GRADUAL DISAPPEARANCE OF SYMPTOMS STARTED ON DIFFERENT DAYS AFTER COMPLETION OF THE LIVER THERAPY

Arsenical intolerance.	*Number of cases responding in days*				
	10th	*11th*	*12th*	*13th*	*14th*
Dermatitis ..	10	3	2	1	—
Jaundice ..	—	1	1	4	2

TABLE V—SHOWING TOTAL DISAPPEARANCE OF SYMPTOMS AFTER THE COMPLETION OF LIVER THERAPY

Arsenical intolerance	*Disappearance of symptoms in weeks*				
	3rd	*4th*	*5th*	*6th*	*7th*
Dermatitis ..	8	6	2	—	—
Jaundice ..	—	—	1	2	5

TABLE VI—SHOWING LIVER FUNCTION AFTER DISAPPEARANCE OF SYMPTOMS OF ARSENICAL INTOLERANCE

Case No.	*Hippuric Acid in gm. excreted after the disappearance of symptoms*		
	After total disappearance	*3 months after*	*6 months after*
1 ..	2·00	2·23	2·61
2 ..	1·65	0·12	1·01
3 ..	0·08	0·34	1·84
4 ..	0·21	—	—
5 ..	0·22	0·47	2·00
6 ..	0·19	0·32	1·20
7 ..	0·27	0·54	1·22
8 ..	1·74	1·84	2·04
9 ..	1·00	1·24	1·80
10 ..	2·00	2·17	2·54
11 ..	1·07	1·32	1·75
12 ..	1·30	1·52	1·93
13 ..	1·01	1·30	1·78
14 ..	0·24	0·82	1·44
15 ..	0·37	0·68	1·27
16 ..	0·75	1·00	1·42
17 ..	0·28	0·52	1·12
18 ..	1·01	1·24	1·62
19 ..	1·78	1·88	2·11
20 ..	1·29	1·41	1·75
21 ..	1·41	1·62	2·00
22 ..	0·90	1·41	1·72
23 ..	0·24	0·62	1·02

TABLE VII—SHOWING HIPPURIC ACID EXCRETION 3 MONTHS AFTER ANTI-SYPHILITIC TREATMENT

Case No.	*Hippuric acid excretion in gm.*
1	2·66
2	1·24
3	1·88
4	1·92
5	2·06
6	1·43
7	1·86
8	1·80
9	2·67
10	1·86
11	2·00
12	1·84
13	1·62
14	1·36
15	1·47
16	1·29
17	1·14

TABLE VII—*Continued*

Case No.	*Hippuuric acid excretion in gm.*
18	1·24
19	1·84
20	1·86
21	2·04
22	1·83
23	1·24

N.B. There was no relapse of signs of intolerance as a result of antisyphilitic treatment.

TABLE VIII—SHOWING HIPPURIC ACID EXCRETION IN 7 FOLLOW-UP CASES 3 TO 6 MONTHS AFTER LIVER EXTRACT AND VITAMIN C INJECTIONS

Case No.	*Name*	*Community, sex & age*	*Urine volume in c.c.*	*Hippuric acid excretion in gm. before antisyphilitic treatment.*
1	B.S.	I-CH.M. 20	202	2·41
2	P	H.M. 15	308	3·11
3	M	M.M. 35	118	1·98
4	M.N.	H.M. 35	224	0·45
5	R.C.P.	H.M. 64	308	2·11
6	J.M.	H.M. 35	535	1·71
7	A.B.	H.F. 22	418	3·21

N.B. Cases No. 1 to 3 are of arsenical jaundice while the remainder are of arsenical dermatitis.

TABLE IX—SHOWING FURTHER IMPROVEMENT IN LIVER FUNCTION IN ARSENIC INTOLERANCE CASES (SAME SERIES AS IN TABLE VIII) 3 MONTHS AFTER ANTISYPHILITIC TREATMENT

Case No.	*Hippuric acid excretion in gm.*	
	Before antisyphilitic therapy	*After antisyphilitic therapy*
1	2·41	2·86
2	3·11	4·2
3	1·98	2·24
4	0·45	0·88
5	2·11	2·72
6	1·71	2·13
7	3·21	3·84

N.B. None of the cases had relapse.

DISCUSSION

It is apparent from the above results that after the administration of the liver extract the excretion of hippuric acid increases which proves that liver function in arsenical intolerance is improved by the administration of the liver.

The normal hippuric acid excretion in Indians has been found out to be 5·0 gm. and it has been investigated with the administration of liver extract in congenital syphilitics and definite improvement found (Lahiry, 1942). He has found that the liver function improved by the administration of the liver extract in cases of grave arsenical intolerance developing in congenital syphilitics. The liver function has been investigated in acquired syphilitics and also in syphilitic women and the hippuric acid excretion has been found by Lahiri (1941) to be much lowered and improved with the administration of liver extract alone or liver extract together with vitamin C. Lahiri

(1942) reported 10 cases of grave arsenical intolerance in acquired syphilitics treated with both liver and vitamin C (100 mg.) and the average hippuric acid excretion was 1·23 gm. and 2·02 gm. respectively before and after treatment. The result is similar to that obtained with liver therapy alone. In both the liver function is improved but the administration of 100 mgm. of vitamin C with liver has no additional advantage.

Many continental workers have observed remarkable improvement in arsenical intolerance with liver therapy and out of them Spiethoff (1931) recommends continuation of arsenic therapy in mild arsenical intolerance. Nair (1935) observed very encouraging results with liver extracts in arsenical intolerance. Milbrandt's explanation is that liver extract supports and stimulates the impaired liver (quoted by Nair, 1935). The other view is that there is a hormone in the liver which has a part to play in the hepatic functions and influences the blood picture. Shibata (1936) worked with liver extract on rabbits. He gave intraocular inoculation with tubercle bacilli prepared on low hormone content and high hormone content rabbits. The latter showed a more favourable blood picture and survived longer than the rabbits with low hormone. Hence the course of tuberculosis should be compared with rabbits having equal liver detoxicating power.

Ohta and Sato (1940) isolated this hormone of the liver which has been named "yakriton"; they have observed that yakriton increases the detoxicating power of the liver although this action wears off slowly.

Harrison (1940) observed improved liver function with the administration of liver in cases of arsenical intolerance in syphilitics. Liver extract acts on the same principles as in anæmia. Ohta (1940) observed improved liver function when "yakriton" was administered to rabbits. McKee and Astrachan (1940), however, found in a small series of test that there were non-improved cases among those intolerant to arsenicals than among cases tolerant to heavy metals and the best results among arsenical intolerants were obtained in cases which received the largest number of liver extract injections. Marked improvement in blood counts and decrease in the icterus index were found in many cases. Wilson and Gibson (1941) tried liver extracts in 165 cases and found that in mild liver insufficiencies the liver function was not improved and this has been corroborated by Lahiri (1942). Dainow (1937) recommended ascorbic acid for the detoxication of arsphenamines in human therapy and this observation has been confirmed by various workers. Bundesen *et al* (1941) has also found improvement in arsenical intolerant cases with vitamin C.

The author offers no explanation of this improvement in the present state of the investigation but hopes to give a reasonable interpretation of the results when the investigation is completed.

Acknowledgment

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SPECIAL ARTICLE

CAUSAL TUBERCULOSIS

G. T. WRENCH, M.D. (LOND.), *Karachi.*

The Special Tuberculosis Number of *the Indian Medical Gazette* is a survey of recent, professional tuberculosis work in India. It is no more than this—with two exceptions. The first is to be found in the leading article in the statement that: "it is generally accepted that when an agricultural country becomes industrialised, the incidence of tuberculous disease and deaths increase, until it is controlled by raising the standards of living and improving the sanitation of the environment, the keystone of which is the solution of the housing question." The second is an article entitled The Control of Tuberculosis in Cities through Organised Health Chawls, and is the only article in the Number, which attempts a wide outlook. Otherwise, the Number is rigidly professional and consists of an endeavour to gauge statistically the progress of anti-tuberculosis work including advances by surgical treatment, five articles on these advances as now carried out in India, five others on work of a purely professional nature, all articles being heavily burdened with the customary statistics. Yet it is little enough that is being done, on the one hand, owing to the minute number of patients being treated compared to the number of actual sufferers in India, on the other, owing to the temporary effect of the treatment. With regard to this temporary effect, the necessity of continuous care after the sanatorium treatment, if that treatment is to have value, is referred to, although the epochal example erected by the late Sir Pendrill Varrier Jones at Papworth is not mentioned, but the failure of ordinary sanatorium treatment is mentioned in a quotation from Dr. Hartly and his co-workers at the Frimley Sanatorium (1935) "that the prognosis of an average case of pulmonary tuberculosis has not materially altered during the past thirty years." Dr. Kanga, the author of the article on Organised Health Chawls alone presents a challenging question. "We are spending", he writes, "lakhs of rupees on propaganda, education, clinics, sanatoria and hospitals, but with our present methods are we seriously controlling the spread of infection? It would be more honest to confess that our present methods give these poor sufferers nothing but false hope and a false sense of security. A sputum-positive case stays in a sanatorium for a few months, considers himself cured on discharge, goes back to his family, breaks down in a short time, and infects his family as well as other members of the public."

There is, then, nothing radically satisfactory in the Number, though its accounts of immediate assistance to the few sufferers treated is eminently satisfactory. Even when the leading article does step outside the ambit of this purely professional work and pronounces that 'the keystone of which is the solution of the housing problem," it does so but to fall into error. That the housing problem is not the keystone of deterioration into disease has been shown by an exquisite piece of work by Dr. M'Gonigle, Medical Officer of Health at Stockton-on-Tees. In 1931 this town had a population of 67,700, and 40 per cent of the males between 14 and 65 years of age were unemployed. There was in the town a large, unhealthy slum area, known as No. I Area, and it was decided to demolish a part of this area and transfer the inhabitants to a new, up-to-date municipal estate, agreeably named Mount Pleasant. This was done in 1927; 152 families being transferred and 289 being left where they were. The results of good instead of bad housing came as a complete surprise. Illness and death-rate both increased, the latter showing an increase of 46 per cent over the pervious slum period. M'Gonigle made a very careful enquiry and eventually discovered that, owing to the rents of Mount Pleasant being higher than the slum rent, the food per man per week cost 34·7 pence per week in the good housing and 46·6 in the bad. It was clearly shown that it was food and not housing that was the key to the problem.

It is surprising that this is not obvious. Food goes into a man, housing is outside him. There has been fuss enough about good air and air is itself a food; at one time it comes to us all with the other foods of the maternal blood. There has not been nearly enough asked about what is good food re. tuberculosis, and how it is to be obtained. Here, then, is an example taken from the animal world. In 1928, Dr. Bartsch took over a cattle farm called Marienhohe, near Bad Saarow. The herd of cattle were so infected with tuberculosis and other diseases that it became a question whether it would not be better to destroy it entirely and start afresh by buying a new herd. But Dr. Bartsch had experience of well-grown food and cattle. He made the farm self-contained; he introduced the original character of the land on to certain parts of the farm, and he used other methods known under the term of biodynamics. In eight years the onetime sick herd became famous for its health and its milk was highly prized by the invalids of Bad Saarow. Attention to proper feeding and a right way of cultivation worked a miracle. Nature does not intend animals and men to be sick. Sickness is a signal that they are on the wrong lines.

Here is another brief example. In 1936, Dr. Chapman arranged that the fruit and vegetables of the Mount Albert School Hostel in New Zealand should be grown on the school land from soil with carefully prepared humus. The result, amongst the 60 persons concerned was "a very marked decline in colds and influenza. Colds were more rare and influenza very mild. Coming to the 1938 measles epidemic, which was universal in New Zealand, the new boys suffered the more acute form of the attack, while the boys who had been at the hostel for a year or more sustained the milder attacks with a much more rapid convalescence."

There is enough evidence of this type to fill a book, not an article. I have filled such a book myself. And surely it is so obvious that one is surprised that no cognisance of it is displayed in the Number. It explains things so simply. When the writer of the leading article in the Number says that tuberculosis increases especially when an agricultural country becomes industrialized, he states the obvious. Food is the very life that goes into living creatures every day. Life is entirely dependent upon it and its quality upon the foods' quality. The countryman has near access to the radical source of resistance to tuberculosis and other diseases, but, when driven into the town to earn his living, his food is usually deplorable. Only when he gets accustomed to a lower standard of food does he survive.

India is on its way to much greater industrialisation and, therefore, to an increase of tuberculosis. Were it, however, possible to build municipal market gardens and farms, as it is to build municipal Mount Pleasants, the real preventative of

tuberculosis would have its chance. At present, even in some Indian countrysides, the distance between it and the people is so vast that the great Dr. Charles Bentley, Director of Public Health in Bengal, in his report for 1927-28 was provoked to the bitter utterance that "the peasantry of Bengal are in a very large proportion taking to a dietary on which rats could not live for more than five weeks. Their vitality is so undermined by inadequate diet that they cannot stand the infection of foul diseases. Last year 120,000 died of cholera; 350,000 from malaria; 350,000 from tuberculosis; 100,000 from enteric." Dr. Bentley comes down to reality. It is the life that goes into men in their daily food that we have to make fit. That opens a wide vista of sound farming freed from its present degradation, a vista which we can glimpse at, but not deal with in this article.

Let us, by all means then, have well-built sanatoria and hospitals, where thoracoplasties and other such skilled remedial work can be undertaken, but let us not regard these sanatoria as effective armoury in anti-tuberculosis campaigns. They are not. Their value in this aspect will be found in the following statement of Dr. Cruickshank, member of the Research Staff, Papworth: "One of the curious points about this disease is that a study of the death-rate statistics reveals that many years before the introduction of anti-tuberculosis campaigns the death-rate had commenced to fall. Moreover, the late introduction of available scientific treatment and control of disease has not had the slightest effect on the death-rates. The death-rate has continued to fall at practically a constant rate, apparently quite independently of any interference from without. For example, the discovery of the tubercle bacillus, the causative agent, and with it the much more enlightened and rational therapy and preventive measures which this knowledge made possible, has equally failed to influence or in any way accelerate the steady decline in death-rates."

Dr. Cruickshank also has his keystone. It is an ingredient of food. What it is and its possible remarkable significance would need an article to itself.

Continued from next column

the signs of inflammation, with intense chemosis of the bulbar conjunctiva; discharge was moderate; cornea and iris were normal; pupillary reflexes normal. On microscopical examination of the discharge, plenty of pneumococci found along with a few rod-shaped bacilli.

Treatment done: Being impressed with the presence of pneumococci, and the failure of the previous treatment, I thought of using M. & B. 693. Finely powdered M. & B. 693 was freely dusted into the dry conjunctival sac and allowed to soak in the lacrymal secretion. After five minutes a warm boric lotion was given. The treatment was repeated morning and evening. No other drug was used, purposely, to see the effect of the drug tried. To my surprise after three washes, the inflammation subsided and the chemosis completely disappeared. Three days' treatment brought about complete cure.

The observation of a single case is given; it is up to the bigger institutions to investigate the line of treatment done and improve it if need be. The same line of treatment is worth trying in gonococcal infections of the eye.

CASE NOTES

A CASE OF TIETZE'S DISEASE

G. T. WRENCH, M.D. (LOND.), *Karachi.*

On 22-10-1942, I was called to see W. J., a British member of the I.A.O.C. He was a man in the early thirties and gave the story that he had had a cold for over a week and for the last four mornings had been woken up by a strong but not violent pain in the lower part of the chest-wall, as if it were being held in a vice. No position in bed brought any relief and he was forced to get out of bed. At first he could not stand straight owing to a catch under the right ribs, but after moving about for half an hour or so the pain would wear off and was only occasionally noticeable for the rest of the day. So his procedure was to get up, move around, shave and dress, and by that time the pain would be so slight as not to bother him. The pain was not increased when he coughed.

I made a general examination. His pulse was 86, when standing; temperature was 98°·4F. There were no abnormal signs in the chest. I noticed that his epigastric notch looked a little odd, but did not think anything of it and turned him round to examine his back, asking him to bend his head down while I was doing so. It was then that he exclaimed: "Hallo, what's wrong with my ribs?" I examined again from the front and there was a notable swelling in the area of the 7th, 8th and 9th costal cartilages of the right side. The swelling could be as readily felt and was distinct as spindle shaped swellings of these cartilages which at the approximate edges encroached upon the intercostal spaces. The cartilages were not actually painful, but were hypersensitive to pressure.

I could make no diagnosis. I gave some treatment for the pain and asked him to let me know if the pain got worse. After two weeks, he let me know that the pain had passed off.

About a week later, the *British Medical Journal* of August 8th arrived with an account of a clinical picture, first described by Tietze in 1921, of swellings of "costal cartilages of insidious onset associated with little or no constitutional disturbances, spontaneously painful." Five recent cases of this rare condition were given, and, though in my case there was at the most only slight tenderness, yet otherwise it closely resembled them. I saw the patient again on December 9th, some six weeks after the commencement of the complaint. The swelling was less, but could still be detected. There was no pain or tenderness.

According to the article of August 8th, twently cases are said to have been recorded, and two further cases have been described in the recent correspondence of the *British Medical Journal.* The only suggested cause is some nutritional deficiency.

A CASE OF PNEUMOCOCCAL CONJUNCTIVITIS

N. ANANTHA RAO, B.A., M.B.B.S., *Raichur.*

A Christian lady, age 18, came to me for treatment of sore-eyes of eight days' duration. She was treated regularly since the beginning with boric wash and argyrol with not much beneficial effect.

On examination, I found that the affection was confined to the right eye, the left being absolutely free. There were all

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THE DARK PEOPLE'S BURDEN

The Anglo-Egyptian Sudan has been rather wittily described as a country where the white women lose their looks and white men their energy. Is it tropical climate or attending circumstances inherent to the residence in the tropics responsible for the ill effects on the settlers? Inadequate sanitation and infections from various parasites are primary factors; nostalgia, tedium, venereal diseases, alcoholic excesses, secure comfort and easy luxury attending the dominating position and preferences enjoyed by them, often dissipation are no insignificant factors contributing to their decadence and deterioration.

People from the West coming from the temperate climate have settled down in the tropics to explore the natural resources of the country. By improving their modes of living and putting up a crusade against the parasitic infections they have maintained their efficiency and national characteristics under the adverse climate of the tropics. In 1665, eight Dutch soldiers were sent by the Netherland East India Company to the island of Kissa, east of Timor, now brought to lime-light in the South Western Pacific theatre of war. The company forgot all about them. The men actually got marooned there. They had their wives with them. The descendants of these eight couples, now over 300, have grown wonderfully fertile, vigorous, hardworking and a sturdy race, without signs of evil effects from interbreeding. They still keep their blood pure with fair European faces and complexion; children have light hair and blue eyes. They have to work hard, yet they are prolific and have kept their North European characteristics. The children of the so-called "Poor white" in Barbados and Grenada when unaffected by any form of parasitism or by venereal diseases and alcoholism, showed no signs of deterioration or decadence. Deterioration, however, occurred when infection took place. Hintze mentions of Barbados and Kissa and also cites the island of Saba, St. Martin and Curacao, where descendants of white settlers are found to-day healthy and vigorous. The same was found in the ex-German colony of Espirato Santo in Brazil, the birth rate there being 48 to 70 and death rate 8 to 14 per thousand. The pioneers had to struggle with nature and disease. The highlands were settled before the lowlands. The later generations could with impunity settle in coast areas.

The United States have shown above others, that white men can live and can exist in perfect health everywhere in the tropics. They have shown it in Philipines in Cuba, and in Panama. The demonstration has been most prominent and spectacular at Panama which has attracted world wide attention. Americans here, men, women and children do hard manual labour, expose themselves to the sun, rain and weather conditions day in and day out, their health remaining perfectly good. It is a glowing testimony of their sanitary triumph.

In India, the villages which were once healthy and prosperous even three or four decades back with robust, courageous, self-reliant people pulsating with life and vigour, are now replaced by unhealthy debilitated, despondent and moribund souls. The climate could not have changed materially within such a short time. Vitality, nourishment, mental recreation and relaxation have been so undermined in them that the temperature, humidity and atmospheric conditions could not be made responsible for the decadence and deterioration. Has not science made rapid progress during this interval? These advancements would sound like fairy tales a few decades back. Could one believe hearing human voice from thousands of miles away, of air conditioned tanks making slaughtering of men a pastime if not luxury or of travelling round the equator in 3½ days? The dark people have evidently fallen out from the line of march.

India could aptly be called a continent. The area is 1808,679 sq. miles, more than 20 times the Great Britain and equal to the size of Europe minus Russia. Her population has increased 75 per cent within the last 60 years, from 20½ crores in 1872 to 40 crores in 1941. The density of population is about 200 per sq. mile. India has nearly a third of the world's cattle population. Her flora is more varied than any other country in the East. The climate varies from torrid to arctic and from almost aridity to a maximum humidity. The mineral deposits in India are almost sufficient to maintain most of the key industry here. Her resources of high grade iron ore are perhaps the greatest in the world. The climate is mainly tropical. Rainfall regulating the temperature and humidity is the highest in Cherrapunje with 460 inches and lowest with 3 inches in Upper Sind annually. The Himalayas extending 1500 miles with an average width of 200 miles provide ideal health resorts and a temperate climate. The 5000 miles of coast line provide equable climate and pure sea breeze. Her fertile plains can feed the whole nation sumptuously; her agricultural possibilities are immense. The villages where the 90 per cent of its population live, with plenty of fresh fruits, green vegetables, fresh fish and pure milk, hand-made flour and rice and home poultry could supply the ideal nourishment available to all. If the preventible diseases could be checked what perfect health and happiness the nation could enjoy! If the fortune-seekers from the west could attain this, why not we?

CURRENT MEDICAL LITERATURE

MEDICINE

Haemorrhage from the Trachea, Bronchi and Lungs of Non-Tuberculous Origin*

Jackson and Diamond (*Am. Rev. Tuberc.*, August, 1942) write that 50 years ago hæmorrhage from the trachea, bronchial tree or the lungs was regarded as being pathognomic of pulmonary tuberculosis. To-day, while tuberculosis still continues to be responsible for more cases of blood-spitting than any other disease, the prominent roles played by cardiovascular diseases, neoplasm and other non-tuberculous processes in the etiology of broncho-pulmonary bleeding are being more and more clearly recognized. The study reported is based on a survey of patients with hæmoptysis observed in the bronchoscopic clinic at Temple University Hospital in Philadelphia from January 1, 1930 to July 1, 1941. The number of patients finally selected for study was 436. Only patients seen by the bronchoscopist were included in the analysis. Inflammatory processes were found responsible for the hæmorrhage in the majority of the cases, the most common etiologic agent being bronchiectasis. Bronchial dilatations were demonstrated in more than one-third of the patients who had massive hæmoptyses and in fully two-thirds of those whose initial attacks of blood-spitting occurred before they were twenty years of age. Nevertheless, in a study of the relative hæmorrhagic tendencies of various non-tuberculous bronchopulmonary lesions, it was found that expectoration of blood occurred actually in a smaller percentage of bronchiectatic patients than in patients with primary carcinoma of the bronchus, in those with pulmonary abscess and in those with bronchial adenoma. Fatal hæmoptysis occurred in but three of the patients in the series, each of whom had a pulmonary abscess. A hæmorrhagic focus could be seen on bronchoscopic examination in 25 per cent of the patients. Nearly all of the neoplasms causing hæmoptysis arose in major bronchi and thus were readily apparent endoscopically. In only a negligible number of inflammatory lesions, however, was it possible to detect a definite bleeding point. There was no endoscopic evidence of recent or active bleeding from a vascular lesion in the tracheo-bronchial tree in any of the patients. The precise cause of the hemoptysis could not be determined in nearly one-fourth of the patients. These were patients in whom no parenchymal disease was demonstrable on rœntgenography and no bleeding point evident on bronchoscopy. The likelihood of existence of ulcerative lesions in the smaller bronchi of these patients must be considered. Despite the fact that in fully 90 per cent of the patients with hæmorrhagic bronchial cancer the neoplasm was situated in one of the larger, bronchoscopically accessible bronchi and that bronchoscopy was performed in these patients soon after the occurrence of the first episode of blood-spitting, the process was found to be too far advanced to permit surgical cure in all but one. Taking into consideration the fact that expectoration of blood is the initial manifestation of carcinoma of the bronchus in only a very small percentage of the patients, it is obvious that bronchoscopy must be done and the diagnosis made early in the course of the disease, before the symptoms have reached the hæmotysic stage, if a successful therapeutic result is to be achieved in these cases.

Poliomyelitis Following Tonsillectomy*

Francis and others (*J. A. M. A.*, August, 1942) write that association of recent tonsillectomy and the bulbar form of poliomyelitis during times when poliomyelitis is prevalent has been previously noted. They now report an extraordinary event in which five members of one family, all of whom had tonsillectomy performed on the same day, developed bulbar poliomyelitis. Three died. The sixth and youngest child of the family was not operated on and remained well, although poliomyelitis virus was present in his stool. Virus was recovered from the stools of two cousins living in a city fifty miles away, with whom two of the children of this family had lived a month earlier. One of the cousins had difficulty, suggestive of poliomyelitis, following tonsillectomy. The evidence suggests that the virus was acquired by the children of the family in question during the visit. Four additional cousins in another family group with whom the involved children had subsequently lived, had been found to be carrying the virus without exhibiting any signs of poliomyelitis. They presumably became infected during the visit. No virus was recovered from the nine adult relatives or from cousins of two other family groups with whom contact had been casual. Among twenty-eight playmates, many of whom had intimate contact with the affected children, a group of three children in one family was found to be carrying virus. The results indicate that a closer association than ordinary contact was involved in the transmission of the virus, but no virus was recovered from extrahuman sources. It is clear that the operative procedure was the factor precipitating the severe bulbar form of poliomyelitis in children who otherwise would probably have escaped with inapparent infections. These observations emphasize again the dangers inherent in tonsillectomy during the season in which poliomyelitis occurs even though it is not notably prevalent in a community.

Sulfadiazine an Pneumonia*

Ensworth and others (*Am. J. Med. Sc.*, August, 1942) employed sulfadiazine for a group of 239 patients with typed penumococcus pneumonia. The fatality rate was 10·9 per cent or only 7·8 per cent if the deaths occurring in less than twenty-four hours were excluded. There was only 1 death among the 113 patients who were under fifty-one years of age (1 twenty-four hour death was excluded). In spite of the fact that the blood levels (usually 7 to 9 mg. per 100 c.c.) during sulfadiazine therapy were higher than those obtained with either sulfapyridine or sulfathiazole, the incidence of toxic reactions was lower. Of the 239 cases, only 5 vomited and 2 of these had vomited before admission as well as afterwards. There were no instances of agranulocytosis. The number of complications of the disease was small: there were 8 cases of empyema, 5 otitis media, 5 pleural effusion and 2 of pneumococcus endocarditis. Five other patients also had miscellaneous other complications. It was concluded from the study that sulfadiazine

appears to have about the same degree of effectiveness as sulfapyridine and sulfathiazole in the treatment of pneumococcus pneumonia while at the same time causes fewer toxic reactions.

Expectorant Action of Iodides

Levin (*Am. J. Med. Sc.*, 1942:203:717) from the comparative study of the examination of the sputum aspirated through the bronchoscope, before and after administration of iodide, intravenously and orally observes that the excretion of iodide is by the blood into the bronchial tree, the time before excretion takes place varying between 15 to 25 minutes after intravenous injection. Salivary excretion occurs promptly and that by way of urine is somewhat delayed. Although the rate of excretion after oral administration is slower than after intravenous injection the action of the drug is as effective and therefore, is to be commended on account of the easier mode of administration.

Sulphonamide Sunlight Eruptions: Clinical Study of 27 Cases

Park and Platts (*Brit. M. J.*, 1942:2:308) in reporting on the clinical study of 27 cases of light-sensitive sulphonamide eruptions observe that 21 were due to salphanilamide and 6 to sulphapyridine, all representing 3·4 per cent of the total cases treated with those drugs and about half of the cases occurring during July and August. They further observe that patients given sulphonamides for more than 6 days are possible victims of sunlight eruptions. The parts of the body affected are in order of severity: (*a*) parts exposed to the sun during chemotherapy; (*b*) the parts exposed in the past; (*c*) pressure points such as the great trochanters; (*d*) least of all, parts always kept covered, such as the bathing-drawer area. The commonest lesions are erythematous papules in a morbiliform or roseoliform pattern, becoming confluent; itching varies; less common lesions are œdema, uriticaria, vesication pustulation and desquamation. Drug fever and other toxic effects are common accompaniments. Most cases subside in 2 to 4 days. Regarding further chemotherapy it was found that by avoiding exposure to sunlight 6 cases completed their course of chemotherapy and 3 had further courses later on without ill effects; in the milder cases, at all events, a rash is no indication to stop the drug. The authors maintain that in many cases the presence of melanin is a protection against these eruptions.

Tetany in Blood Donors

Frazer and Fowweather (*Brit. M. J.*, 1942:1:759) report seven cases of tetany occurring in blood donors believed to be of the hyperventilation type. The blood changes noted, *viz.*, low inorganic phosphorus and high normal or raised calcium, correspond to those found in other reported cases of spontaneous hyperventilation tetany. Six out of seven cases were donors for the first time and overbreathing due to nervousness and aprehension was the principal factor concerned. The treatment recommended is to supply air enriched with CO_2, this is obtained from a special CO_2 supply, where available, otherwise the patient should be caused to rebreathe his own expired air by placing a paper bag over his nose and mouth.

Sulphonamides and Small-Pox

Williamson (*Lancet*, 1942:2:67) in reporting on the results of treatment of 103 cases of small-pox with sulphanilamide by mouth (1 gm. 4-hourly, day and night) observes that sulphanilamide is of no use in a toxic case though it is definitely indicated in the treatment of septic complications of the focal phase; also, if given early it may modify the number of lesions, the incidence of septic complications and the degree of subsequent scarring; and finally, it reduces the fatality rate among cases showing septic complications. The death rate in the treated series was 100 per cent in the toxic cases; 22·4 per cent in the focal phase in unvaccinated patients and 4·8 per cent in those vaccinated.

The Use of Anterior Pituitary Extract in the Treatment of Allergy

Bucher (*Illinois M. J.*, 1942:82:202) writes that the etiology of allergy may be classified into primary and secondary. Under primary etiology is considered the individual with all the abnormal structures and functions which may produce a condition whereby the individual responds allergically to the secondary factors of which proteins are outstanding and physical and chemical agents not infrequent. In allergic individuals an abnormal biochemistry is present which is the result of abnormal cell and tissue function producing further abnormal biochemistry and cell function, causing a vicious cycle with the typical changes of function and structure of allergy and anaphylaxis, *viz.*, decrease in rate of blood flow, diminished blood volume, fall of blood pressure, escape of plasma in the tissue spaces and production of œdema and eosinophilic infiltration. The object of treatment is to change the abnormal functions thus involved. The outstanding points that led to the use of anterior pituitary extract in the treatment of allergy was the symptomatic relief experienced by patients suffering from asthma, hay fever, urticaria, angioneurotic œdema, etc., by the proper use of epinephrine, calcium, later enzymes, pancreatic and tissue. The anterior pituitary is known to have a adernotrophin, pancreatrophin, parathyrotrophin, gonadotrophin and many other trophins and some of these are clearly associated with the primary etiology of allergy as demonstrated by research and clinical experience and anterior pituitary is thus logically looked for as a remedy in allergy.

The method used is to administer subcutaneously, anterior pituitary extract equivalent to 18·5 gr. fresh gland once a day for 7 to 10 days, then 3 times a week for 2 or 3 weeks or longer, if necessary, until relief is obtained, then twice a weak. Some patients require more treatment than others. The average for fairly permanent relief of asthma, hay fever, migraine, etc. is about 25 injections. In a previous report of a series of 50 cases, 82 per cent received good results, (70 to 100 per cent symptomatic relief), 12 per cent fair results (less than 70 per cent symptomatic relief) and 6 per cent received little or no relief. After eleven years of personal experiences with 300 cases and reports received from other physicians the author maintains that the above figures are approximately correct.

SURGERY

Prastatic Enlargement

Alexander (*Edinburgh M. J.*, 1942:49:337) in dealing with the subject writes that patients suffering from prostatic enlargement may, from the surgical point of view, be grouped as follows: (*a*) Those with retention of urine: (1) acute retention; (2) acute retention supervening on chronic retention; (*b*) those without retention of urine. *Patients with retention of urine.* Here the actual enlargement may be moderate or slight but the congestive element great when hot bath and morphia suppository to relieve congestion will do, failing which catheterisation with a rubber catheter should be carried out and the relief given may be sufficient to re-establish normal micturition. Acute urinary retention supervening on chronic retention presents an entirely different picture and the condition must be relieved by the gradual decompression of the obstructed urinary tract; in case where a catheter cannot be introduced per urethrum and tied in, a suprapubic tube may be introduced but controlled drainage must be maintained. The danger in these patients is that rapid evacuation of the bladder will convert a postrenal anuria (retention of urine) into a renal anuria (suppression of urine) and precipitate uræmic symptoms. *Patients without retention of urine.* The first essential is to establish the diagnosis of simple prostatic enlargement and this may be simulated by vesical and prostatic calculi, by median bar hypertrophy and by malignant disease of the prostate. Operation is required to relieve urinary obstruction. The criterion of urinary obstruction is the measurement of residual urine; should this exceed 2 oz. then operative treatment is desirable. The risk of operation must be weighed up, the efficiency of the circulatory and respiratory system and of the central nervous system be established as well as the renal function for which the estimation of blood urea nitrogen is a safe guide, the upper limit of safety being 50 mgm. per 100 c.c. of blood. In all but a few patients the preliminary emptying of the bladder by regular catheterization will be found necessary. The author reserves the two stage operation with preliminary cystostomy for patients whose blood urea remains constantly high, for those cases where catheterisation is difficult or impossible or causes hæmorrhage and for those who have already developed a severe cystitis. When the patient is thus rendered fit for radical operation three procedures are available: (1) suprapubic prostatectomy, (2) perineal prostatectomy and (3) transurethral diathermy resection. Suprapubic prostatectomy has remained the operation of choice in author's practice and the essential factors for success in this procedure are: (1) prevention of urinary failure, (2) control of hæmorrhage (3) minimal discomfort for the patient during convalescence. Threatened renal anuria can be relieved by the prompt intravenous administration of an isotonic aqueous solution of sodium sulphate. The measures taken to control hæmorrhage varied, *viz.*, digital pressure on prostate bed, packing the prostatic cavity with gauze, irrigation with hot lotion, open operation with suturing of the bleeding vessels in the upper rim of the cavity as advocated by Harris or open operation with lateral hæmostatic suture and trigonal suture by means of the boomerang needles and complete closure of the bladder as advised by Walker. Attempts to check postoperative hæmorrhage by diathermy coagulation have not proved satisfactory as there has been a tendency to sloughing with reactionary or secondary hæmorrhage. Operation technique is thus described in detail.

After treatment. General—primary, shock is treated as usual. Rectal infusions are contraindicated and intravenous drip and blood transfusion are required only in the very rare cases of secondary shock. Transfusion may raise the pressure in the kidneys and interfere with their functions and may even precipitate renal anuria. *Local*—suction irrigation with a Carrel syringe is employed by the author. In the first 24 hours it is reduced to a minimum being used only to clear the tube and catheter of clots but thereafter when the risk of reactionary hæmorrhage has passed it is regularly carried out every 4 hours. On the 4th day the suprapubic tube and parietal drain are removed. The urethral catheter is removed on the 10th day by which time the suprapubic wound is healed except for a small granulating area where the tube was inserted. Stitches are removed on the 12th day. The patient is encouraged to drink during convalscence plenty of bland fluids and after the suprapubic drain is removed, a six day course of Collosal Mandelate is frequently of value. Complications following operation are epididymitis, chest complications, sudden heart failure and hæmorrhage. Epididymitis is prevented by vasectomy, chest complications by using spinal anæsthesia in people prone to bronchial troubles and hæmorrhage by method mentioned before. Sudden heart failure following a major operation cannot be eliminated in some cases. Conditions complicating prostatic enlargement are vesical or prostatic calculi and simple papilloma of the bladder.

The use of x-ray of varying potency has been advised for reducing the prostatic enlargement and some success is achieved clinically and it is probable that the enlargement was congestive rather than hypertrophic. The author has no personal experience with Steinach operation I and II but have seen such operated patients with no benefit.

Prostatic cancer is of slow development and cause few urinary symptoms. Treatment is unsatisfactory. Complete removal is a formidable procedure; the value of x-ray therapy is doubtful but the pain of secondary metastatic lesion in bone can be greatly alleviated by x-rays. Radium therapy by implantation of needles has proved disappointing, in many cases provoking early fungation of the growth with its attendant miseries.

Transurethral electroresection may relieve retention but it is pathologically unsound as it destroys the natural barrier and allows the growth to fungate. Best results are obtained by the author from presacral neurectomy carried out simultaneously with cystostomy and subsequent x-ray therapy to reduce the pain from metastasis.

Primary Carcinoma of Lung*

Perrone and Levinson (*Ann. Int. Med.*, July, 1942) present their findings in 115 cases of primary carcinoma of the lung. Four cardinal symptoms in their group were cough, hæmoptysis, pain and dyspnea; in conjunction with these, fever, chills, weight loss, wheezing and asthma were found in many of the cases. Seventy-seven of the 115 cases were diagnosed by means of bronchoscopic biopsy; 38 were autopsy cases. They believe that there has been a real and absolute increase in incidence. Bronchoscopic examination, they say, is by far the most important

diagnostic procedure available and should be performed in all cases of persistent cough, whether dry or productive. All but one of the 77 cases diagnosed by bronchoscopic biopsy died within three to eighteen months. The one is still living, following pneumonectomy. Of the 77 cases diagnosed by bronchoscopic examination, only 3 cases were amenable to surgical treatment. The authors believe that lobectomy or pneumonectomy is the treatment of choice.

Human Plasma in Spinal Anaesthesia*

Paper and Rovenstine (*J.A.M.A.*, August 15, 1942) write that the two most important problems concerning the use of spinal anæsthesia are the preferred technic necessary to produce the desired extent of anæsthesia in a manner predictable and with minimal dangers and to secure the desired duration of anæsthesia with doses of the agent that provide a wide margin of safety. As contribution to this subject, the authors report studies on 5 normal male volunteers, employing human plasma as the solvent for the procaine employed in spinal anæsthesia. The technic was standardized as far as possible. A level table was used. Lumbar puncture was performed in the fourth lumbar interspace with the subject lying on his left side. The dose of procaine selected (3 subjects were given 100 mg. doses and 2 were given 50 mg. doses) was then dissolved in 2 c.c. of spinal fluid or 2 c.c. of plasma and injection was completed in exactly ten seconds. The subject was turned gradually and gently to the supine position. The sensory level of anæsthesia was noted at frequent intervals by response to pin prick, and motor power of the lower extremities was observed at the same time. Two end points with regard to sensory anæsthesia were noted: the beginning of recession from the maximum height and the ability to perceive painful stimuli at the level of the twelfth thoracic vertebra. The return of motor power was indicated by any motor activity of the lower extremity. This technic was later employed for clinical anæsthesia on 70 patients. The majority of the latter were subjected to surgical procedures in the lower part of the abdomen and lower extremities. There have been no untoward manifestations during surgery or postoperatively that might be attributed to the plasma. Observations of these few cases have left the impression that dose for dose the duration of procaine spinal anæsthesia is prolonged when plasma rather than spinal fluid is the diluent. Predominantly, motor or sensory anæsthesia can be obtained easily and as desired by appropriate adjustments of the position of the patient.

Enterobius Vermicularis in the Appendix*

Kuitunen-Ekbaum and Morgan (*Canad. Pub. Health.*, July 1942) point out that the possible relationship of Enterobius vermicularis to appendicitis has been the subject of numerous reports. They reported that 100 surgically removed appendices from children from 3 months to 14 years of age showed Enterobius vermicularis in 34 appendices, the incidence being 40 per cent among 45 girls and 29 per cent among 55 boys examined. No correlation was found to occur between the presence of Enterobius vermicularis and appendicitis. The parasite occurred in 27 normal appendices, in 3 acute, 1 chronic and 1 acute and chronic appendicitis. The largest number of pinworms, 290 specimens, was found in the normal appendix of a 5 year old girl. Ova were found in 6 appendices, apparently released from the dead atrophied pinworms. The eggs were in the early stage of development. Faecaliths were found in 11 acute appendices and 1 normal appendix. This series of appendices examined, though small, strengthens the evidence that Enterobius vermicularis is an accidental intruder in the appendix and has no direct correlation with appendicitis.

Sinus Infection

Winters (*Med. World.*, 1942:57:10) states that active sinus infections are often overlooked due to absence of headache which is only present when the outlet to a sinus is blocked and a continued mucus secretion within the cavity of the sinus causes pressure. He also states that arthritic changes in the cervical vertebræ, shoulder and the region of the scapula as well as impaired vision, neuralgia, migraine and wry neck are usually secondary to a sinus infection. It is also necessary to seek for and correct, if present, contributing factors such as a deflected nasal septum, structurally abnormal or congested turbinates, colonic disorders, protein sensitivities and foci of infection.

Treatment of Burns*

Hull (*Arch. Surg.*, August, 1942) basing on an analysis of 188 cases of burns encountered from 1930 to 1939, in contrast to a comparable series of 92 cases occurring from March, 1939, to November, 1941, reviews the present standards of treatment. Three surgical principles are emphasized in the treatment of burns: (1) the primary treatment of shock before considering treatment of the burned area; (2) the recognition of a burn as an open contaminated wound, which should be properly cleaned before treatment; (3) the choosing of a sterile and non-irritating agent for the treatment of the burned area.

Patients with severe burns when first seen should be given morphine, should be wrapped with some covering (no greasy preparation should be applied to the burn) and should be sent as rapidly as possible to a hospital where proper shock therapy can be given.

Plasma therapy in the treatment of shock due to burns has, as in this series, definitely lowered the mortality rate. Infants and children are particularly liable as regards shock and should be treated for it whether or not they exhibit clinical signs. Though the reported mortality rate of 13 per cent is in no way remarkable, deaths from shock have dropped to 3 among the last 92 patients treated compared with 27 among the previous 188.

Cleaning of a burn should not be undertaken until the patient is responding well to shock therapy. Cleansing should be done under aseptic conditions as quickly, gently and thoroughly as possible.

Eschar-producing agents are preferred at this clinic for the treatment of burns involving multiple areas. They should not, however, be used on the fingers, the hands, the toes, the feet or face. Agents do not replace destroyed tissue, and after their use the patient must be watched daily for all complications that can develop in the stage between the accident and the cure. Pneumonia complicating burns in infants and children has proved rapidly fatal in spite of modern therapy.

Patients with third degree burns can be spared many weeks in the hospital by skin grafting performed as soon as the condition of the patient permits.

It is a prediction that hospitalization for patients with burns will be prolonged in the future, because some of the severely burned patients who died from shock in the past will now be saved owing to improved methods in shock control.

Nucleic Acid Treatment of Subacute and Chronic Sinusitis

Howe (*Ann. Otol. Rhino. & Laryngol,* 1942:51:220) writes that hyponuclemia usually results from a deficient nucleoprotein diet, a faulty gastrointestinal digestion or a persistent nucleic acid leak in the sinus and nasal discharges in subacute and chronic sinusitis (this dicharge is the largest factor in the production of hyponuclemia). In children the thymus gland and the hypertrophied pharyngeal lymphoid tissue and the enlarged cervical glands are a considerable factor in supplying the deficiency. The hypometabolism as evidenced by the slow pulse and sluggishness are the attempts of the body to conserve the stored nucleic acid for more vital functions. A pale pasty complexion, distinct pallor, excess weight and an appearance of pseudorobustness is the clinical picture encountered in hyponuclemia. Additional symptoms are loss of appetite, almost anorexia; sluggish mental or physical response; indifference to play and surroundings; soft and unhealthy flesh and a stunted growth. In well defined cases of hyponuclemic syndrome the diagnosis is made easily. In subclinical type the history is more important than symptoms—in all cases of prolonged excessive nasal, postnasal or bronchial discharge, persistent headache or slow convalescence from a subacute stage hyponuclemia should be suspected; patients with frequently recurring colds will sooner or later develop hyponuclemia. All cases of chronic nasal discharge in children who have no intranasal cartilage or bone obstruction deformity or nasal allergy are of either evident or subclinical type. Nucleic acid therapy has proved effective in cases of subacute sinusitis with hyponuclemic syndrome. In children under 10 years of age 10 grains powders and in children over 10 years 15 grains powders mixed in water, milk or orange juice are given twice daily one-half hour before meals morning and evening until the nasal symptoms are decidedly improved and the hyponuclemic symptoms are evidently less. Then nucleic acid is given once a day. As soon as signs of normality are evident, the powders are given on alternate weeks for 2 or 3 months until normality is well established. There is no toxic effects from larger doses. The patient should also be put on a diet rich in nucleoproteins. One per cent nasal spray of ephedrine on the first few days of treatment to help maintaining of drainage will quicken results but its use is rarely necessary for more than 3 or 4 days. However, when sinusitis or acute infection has not existed long enough to deplete somewhat the stored nucleic acid it is unreasonable to expect a decided effect. Practically every treatment of chronic sinusitis in the last 20 years, except Proetz' displacement and the Dowling pack gave relief by destroying tissue either the deeper cavernous or the superficial mucous membrane diminishing the functional capacity of the nose. In contrast nucleic acid marshals the defensive and offensive element of the blood and endocrines to destroy the infections without destroying in any way or lessening the functional capacity of any tissue in the upper or the lower respiratory tract. With nucleic acid therapy not only nasal and upper respiratory infections clear up, but likewise cervical adenitis, general health and growth are markedly improved and in large percentage cold and reinfections are markedly reduced.

OBSTETRICS AND GYNAECOLOGY

Some Aspects of Oestrogenic Therapy

Haultain (*Edinburgh M. J.,* 1942:49:73) in dealing with the subject gives a short historical account of the natural and synthetic œstrogens. He then describes the effects of œstrogens which may be summarised as follows: (1) They increase the size and vascularity of the uterus and stimulate the proliferation of the endometrium in preparation for the action of progesterone. (2) Bleeding will occur from endometrium released from the influence of the œstrogens—œstrin withdrawal bleeding. (3) They increase the spontaneous activity of the uterine and tubal muscle and also the reactivity of the myometrium to oxytocins. (4) They increase the vascularity of the vagina and vulva and the cornification of the vaginal epithelium. (5) They cause an inhibition of the activity of the anterior lobe of pituitary. (6) Vasomotor metabolic and psychical disturbances characteristic of the menopause may occur when the body is deprived of œstrogen. (7) In large doses they inhibit lactation, probably by depressing the action of lactogenic secretion upon the breast. (8) They promote the growth of the nipple and the mammary gland. Oestrogens should never be given in a haphazard way for conditions without the indications given above, otherwise much harm may result in the upset of menstrual and metabolic functions (irregular bleedings, etc). Prolonged dosage may produce underactivity of the ovary and sterility by inhibiting the anteror pituitary, specially in the treatment of secondary amenorrhœa, when prolonged treatment may do more harm than good if not given in cycles to correspond with the preovulatory phase. Care has also to be taken in the use of œstrogens to women whose menstrual cycles are normal *e.g.,* for skin conditions as the menstrual upsets may be serious—in such cases they should be given only in the postmenstrual and proliferative phases of the cycle when usually no harm results. That all œstrogens have carcinogenetic properties should act as deterrent in giving prolonged treatment over months or even years. Methods of administration and dosage of both natural and synthetic œstrogens are discussed in detail and the author then gives an account of his own experience with œstrogen in several obstetrical and gynæcological conditions as follows: (1) *Use in cases of uterine hypoplasia in order to stimulate growth.* Use should be restricted to from 10 to 14 days every month so as to try and stimulate the œstrone producing period of cycle and if menstruation is occurring should only be given during the postmenstrual and proliferative phases; dosage varies greatly but 1·5 mgm. of stilbœstrol is the maximum. Thyroid may aid the results as also the use of progesterone in the premenstrual phase. (2) *To promote uterine bleeding in cases of secondary amenorrhœa.* Usually 1·5-3·0 mgm. stilbœstrol is given daily from the 10-14th days of the cycle—bleeding often results in these cases, however, from œstrogen withdrawal and not from the establishment of a regular menstrual cycle, the amenorrhœa recurring after cessation of treatment. The most satisfactory cases to treat under this heading are those of delayed

menstruation following the postnatal period. (3) *To increase the activity and sensitivity of the uterine muscle.* 10 cases of missed abortion were treated with 2 to 3 gms. T.P.E. given daily for seven days—2 cases aborted within the period; 4 other after castor oil and three injections of 0·5 c.c. pituitrin given on the 8th day and 3 others after pituitrin injections but in these the abortion was incomplete. The failure case was one of incomplete abortion and should not have been classed as missed abortion. The drug may be of value in uterine inertia but the author has no personal experience of its use in the condition. (4) *To promote proliferation of the epithelium of the vagina and vulva.* A series of 49 cases of senile vaginitis and kraurosis treated with benzoate alone or with œstrone dragees and/or pessaries, with stilbœstrol or with T.P.E. when 40 were cured, 6 very much improved and 3 unaffected. (5) *To inhibit the anterior lobe of the anterior pituitary.* Oestrogens have been used with success in preventing premenstrual and menstrual headaches (thought to be due to increased pituitary activity) in small doses (not more than 0·3 mgm.) for three days before the headache is to be expected. (6) *To prevent the occurrence of disturbances characteristic of menopause.* The author is satisfied by giving small doses (0·5-1·0 mgm.) either of natural or synthetic œstrogens starting on the 5th day of the operation and the menopausal symptoms are prevented in nearly every case of removal of ovaries. If, however, symptoms recur they can be checked at once by a larger dose of œstrogen. Dosage is gradually decreased after 6-8 weeks and could in the majority of cases be discontinued by the end of the 4th or 6th month after operation. (7) *To inhibit lactation.* 113 cases were treated with the following result: complete inhibition of lactation in 104 cases, in 7 there was persistent secretory activity and in 2 there was recurrence of the secretion after the treatment but this too was controlled by a few more doses of œstrogens. Diethylstilbœstrol was given in 5 mgm. doses three times a day for two days, twice daily for one day and once daily for four days whereas T.P.E. was given as one dose of (*a*) 250-300 mgm. in oil (*b*) 250 mgm. dispersed in water or (*c*) 4000-5000 mgm. orally during the course of 4 days. (8) *To promote the growth of the nipple and the mammary gland.* Several cases of chronic mastitis have been treated successfully with œstrogens. Premenstrual mastalgia can also be sometimes benefited by small doses of œstrogen given for 2 or 3 days before the pain is expected.

PEDIATRICS

Acute Bacillary Dysentery in Infants and Children: An Analysis of 315 Cases

Ouyand (*J. Trop. Med. & Hyg.*, 1941, Ref. *Sindh. M. J.*, 1942:15:1) from the analysis of the study based on the records of 315 patients admitted to the Pediatric Ward of the Peiping Union Medical College Hospital from July, 1930, to June, 1938, points out the following facts regarding etiology, symptomatology, complications and treatment, special attention being given to prognosis:

Etiology. *Age.* The age of the patients was from birth to eleven years. 20·9 per cent were under one year while the incidence was almost 40 per cent during the second year. There were five newborn infants of which two gave the history of their mothers suffering from dysentery at the time of labour. 77·4 per cent of the patients were below three years of age, a mortality rate of 50 per cent occurred in the first year of life; for the 244 patients below three years of age it was 40·5 per cent while of the total 113 deaths 87·6 per cent fell below the age of three years. *Causative organisms.* Of the 315 cases 212 or 67·3 per cent yielded the causative organism (not infrequently five or more specimens of stools were sent before a positive culture was made). Of the remaining 103 cases 88 showed no pathogenic organisms in the stool culture and the other 15 cases were moribund on admission and no specimen of stool was available for cultural examination. Mannite fermenting group and Shiga organisms were the two strains prevalent and both of them caused a considerable mortality in younger children below the age of five. *Social status.* The disease appeared more prevalent and severe among the poorer class.

Symptomatology. *Temperature.* Usually patients of the younger group and those with Shiga infection had a longer febrile period than older children and those with mannite fermenting organisms respectively. *Character of the stool.* The onset of dysenteric stools was, as a rule, sudden, usually 12 to 24 hours after the onset of fever. In infants and with Shiga infection it took longer for the stools to return to the normal character than in case of older children and Flexner infection respectively. *Dehydration.* Reduction of body fluids including water and salt content, developed quite rapidly in the series. Signs of dehydration were: loss of weight noticed on the third or fourth day, dry tongue with parched lips, dried skin with loss of elasticity specially noticed over the abdomen and sunken eyes; there were symptoms of meningeal irritation when dehydration was prolonged. *Acidosis* was seen on admission only in 13 cases diagnosed on the presence of air-hunger type of respiration; most of these were below two years of age; nine cases died, four were cured three of which were above three years. *Vomiting.* 126 patients (43·2 per cent) had this symptom at the time of onset and and it occurred in Shiga and Flexner infections with about equal frequency; it had no prognostic significance but in 5 cases where it was of coffee ground color the outcome was invariably fatal. *Convulsion.* These were present in 90 cases (28·6 per cent), mostly in patients under five; the total mortality rate of the group with convulsion was 46·6 per cent. *Blood leucocyte count.* In infants and younger children leucopenia around the level of 5000 per cubic millimeter at the onset was quite common as contrast to the cases in older children where blood showed more often mild leucocytosis—no appreciable difference was observed in the count of the Flexner infection and that of the Shiga infection. The degrees of leucopenia and leucocytosis hardly bear any prognostic significance.

Complications. Common complications are secondary infections in different parts of the body and deficiency diseases of all kinds. In this series *bronchopneumonia,* bacteriæmia, furunculosis, otitis media, stomatitis and pyelitis were the most common infections in the order of frequency. *Bronchopneumonia.* 58 cases had this complication and 54 patients died of which 53 were below five years of age. *Bacteriæmia.* In a total of

66 cases in whom postmortem cardiac blood was cultured 25 or 38 per cent resulted in positive growths—staplylococcus aureus in 6, B. pyocyaneus in 4, B. coli in 4; pneumococcus group IV in 3, B. proteus in 1 and streptococcus hæmolyticus in 1, mannite fermenting group in 4 and Shiga in 2. *Deficiency diseases.* Due to faulty absorption of nutritive elements from the intestines and the usual limitation of food in the early stage of the disease there is inadequate intake of proteins and vitamins with the development of nutritional œdema, xerophthalmia and other deficiency diseases. Nutritional œdema was found in 27 cases, occurring in most cases during the 3rd and 9th week of illness; the range of serum albumen was between 0·9 and 2·8 gm. per 100 c.c. Mild xerosis of the cornea and conjunctivæ is easily overlooked unless specially looked for and subclinical vitamin C and D deficiencies undoubtedly also occur during the long convalescence after dysentery if the dietary regime is not well controlled. *Thrombocytopenic purpura.* Four cases developed purpura hæmorrhagica and in three of them the blood picture showed marked reduction of platelets, prolongation of bleeding time and absence of retraction of clot in 24 hours. Four of them died, three showed Shiga infection and the fourth no pathogenic organisms. *Secondary anæmia* is common from the combined blood loss and inadequate nutrition.

TREATMENT. *Diet.* Every patient was given only water and no food during the first 24 to 48 hours, the exact length of time, depending on the severity of the toxicosis. After this, food was started with a small amount and gradually increased upto a maintenance level. The quality of food did not present much problem in older children. In infants whole milk, skimmed milk, lactic acid milk and protein milk were all given fair trials and the results suggest that it was not so important in the choice of the quality of the milk as the judgment of how and when to increase its quantity. The increase should be gradual and guided chiefly by the patient's appetite. The mere fact that the child continues to have 10 to 15 stools a day should not be taken as a contraindication for increase of the quantity of food, for the lesion in the colon would take a long time to heal and the frequency of stools may persist for many days after the improvement of the general conditions. *Drugs.* They had a small part in the treatment of acute bacillary dysentery. Specific medicine is wanting. Salines were used at the beginning of the disease and not afterwards. Tincture of opium was necessary when the frequency of stool was very great and when there was much abdominal pain. Enemata with various chemicals have been used in various types of cases and it proved of some value when the washings were done in the early part of the infection independent of the kind of enema used. *Administration of fluids.* This not only replaces the water and electrolytes but also deals with the disturbed acid base equilibrium and the marked toxicosis. The methods of administering different fluids may be briefly outlined as follows: *Subcutaneous saline.* The method of giving saline was the gravity method given to both thighs. Even infants could tolerate quite well 100 to 200 c.c. in each thigh at a time and this may be used twice daily. Three-way syringe method may be employed when it is difficult to keep the patient still. Subcutaneous saline was used 1233 times without any secondary infection. *Intraperitoneal saline.* This route was used only when the desired amount could hardly be given by other routes at one time. The fluid given is more easily absorbed. There were gaseous distension in four cases and signs of peritoneal irritation in one case but all of them recovered. Infants of 8 to 10 months received 200 to 300 c.c. with no apparent discomfort. *Intravenous glucose.* Glucose was given generally by the intravenous route, the concentration commonly used being 5 per cent in normal saline. Good results were also observed when 10 per cent in doubled distilled water was given by the route together with saline subcutaneously. The usual dose was calculated on the basis of 25 c.c. per kilo of body weight and 300 c.c. at one time was the maximum that could be given to an older child. Reactions met with were fever and chill. *Glucose by continuous intravenous drip.* Approximately 25 c.c. per kilo of body weight of a 5 per cent solution of glucose in normal saline was injected rapidly in first 25 minutes after which the rate of flow was reduced to the rate of aproximately 100 to 150 c.c. per kilo of body weight for 24 hours—the average continuous running period covered 63 hours. There is more chance of secondary infection at the site of infection and also hypostatic pneumonia and so its use should be limited to only combating the initial stage of severe dehydration. *Blood transfusion.* It was done in patients who were in critical conditions. The amount given in each case was 15 c.c. per kilo body weight and 250 c.c. at one time was the arbitrary maximum. 62 patients had this treatment within the first two weeks of illness mainly to combat toxicosis while the remaining 32 received it after the second week for increase of general resistance and controlling secondary infections. The reactions noticed were fever, urticaria and cyanosis but they gave no serious consequences. *Antidysenteric serum.* The result from the use of polyvalent antidysenteric serum showed that its effectiveness in controlling the infection is doubtful.

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(*Continued from page 156*)

pituitary glands, to generate other hormones which are directly responsible for the development of udders is, however, yet lacking. Dr. Folly has further observed that the quality of milk from cows depends on the strength of the doses of sex hormones or the synthetic preparations administered. Strong doses may even altogether stop the production of milk. Weak doses, on the other hand, have been found to increase the proportion of fats and other solid matter in milk which demonstrates that a proper selection of strength can improve the quality of milk. Further research in this dirction is in progress, and these new results are destined to be of considerable economic importance.—*Science & Culture.*

NOTES AND NEWS

DRUGS TECHNICAL ADVISORY BOARD

The Drugs Technical Advisory Board, created in connection with the Drugs Act, 1940, "to advise the Central Government and the Provincial Governments on technical matters arising out of the administration of the Act and to carry out the other functions assigned to it by the Act", recently had its first meeting held in New Delhi. Sir Gordon Jolly, Director-General of the Indian Medical Service and Chairman of the Board made some suggestions about the use of various authoritative pharmacopœias other than the British Pharmacopœia and the draft rules formulated by the Government. The Director-General referred to a letter from the Government of India requesting the Board to advise on the question of what other pharmacopœias in addition to the British Pharmacopœia should be prescribed for the purpose of standards of identity, purity and strength of drugs other than sera, vaccines, vitamins and similar products. The suggestions put forward included the recognition of the standards of all authoritative pharmacopœias, subject to the condition that the label of the container must explicity mention the name of the pharmacopœia should its standard differ from that laid down in the B.P. The letter further requested the Board to offer suggestions, if any, for the modification of the draft rules drawn in connection with the proposed Central Drugs Laboratory. Sir Gordon stressed on the need to obtain a set of rules which will be acceptable not only to the Government of India but to the Provincial Governments responsible for administering the Act within their boundaries.

The establishment of the proposed Central Drugs Control Laboratory, as the Director-General has himself said, is a primary injunction of the Drugs Act, 1940. It is noteworthy that the Government of India has at last felt the necessity of formulating the rules laying down the functions of the Drugs Central Laboratory which, it is understood, will come into being on an agreement being arrived at on these rules. The Director-General, as is wont with such high officials, has found an excuse in the present abnormal conditions of the war for such delay in the fulfilment of a primary injunction which is likely to invite adverse criticism. Unfortunately, such a weak excuse has hardly impressed us. The report of the Drugs Enquiry Committee, be it remembered, was submitted in 1931, and it took full nine years to convince the Government as to the recommendations of the report when there was no war, so far as we are aware, to divert the attention of the Government. In all other countries the war has expedited the adoption of measures calculated to further national interest whenever such problems come up before the Government for consideration. It is only in India that war has come to stand in the way of prompt adoption of measures in conection with problems which vitally concern national interest—*Science & Culture.*

HOW THE HEALTH OF TROOPS IS MAINTAINED

The Regimental Medical Officer, who is an I.M.S. officer in the case of an Indian unit is the sanitary adviser of the unit. He is responsible for the health of his unit to the extent that he is technical expert to the Officer Commanding. It is his duty to bring to the notice of the officer commanding unit of all sanitary defects and make recommendations to rectify them. Being a member of the officers' mess of which he is generally the secretary he is in constant touch with the commanding officer, the adjutant and the quarter master. They always see that recommendations made by the doctor to improve and rectify sanitary conditions are strictly and expeditiously carried out. The perfection in combating preventible diseases and the maintenance of effective sanitation on which the efficiency of troops depend are no inconsiderable concern of every officer and man.

On active service, even under the most favourable conditions, the wastage from sickness is enormous. The water supply, the quantity and quality of rations often deteriorate and prove inadequate. Physical strain, hardships, exhaustions and outward environmental conditions are responsible for the increased sick admission rate as compared with that in peace time life in a cantonment. Enteric fever, dysentery, diarrhœa may become more prevalent; the deficiency diseases, almost unknown in peace conditions, among troops, tend to make their appearance when rations become ill-balanced or deficient due to difficulties and strain on supply and transport. In some theatres of war malaria, sandfly fever and oriental sores are often formidable factors which undermine the strength and vitality of the troops.

Whereas there are evident difficulties which baffle all our endeavours to arrive at an effective control of the situation, it is imperative on every young medical man whose interest it is to keep his regiment fit to see that there has been no omission on his part to study the adverse factors hampering the health of his men and improvise ways and means to rectify the defects. He is expected to keep in touch with the individuals generally and particularly with his medical history and record. Constant supervision of the diet with reference to vitamin deficiency, clothing, provision of exercise, mental recreations, adequate ventilation of barracks, accommodation, disinfection and exposure to sun of tents and clothing, personal hygiene, particularly relating to teeth, vermin infection and care of feet, have to be maintained by him. The study of the previous history of his unit, its sick ratio, state of prophylactic inoculation against enteric and cholera, prompt action by notification, isolation, disinfection, treatment of contacts in case of infectious diseases have to be initiated by him. Supervision of food supplies, cooking, slaughtering places, disposal of waste water and refuge have to be daily attended to. Disinfection, supervision of places of ablution, conservancy and refuse disposal, camp cleanliness including animals lines, hired transport lines, camp bazars, railway station, camps and sites of troops passing through, sanitation of routes between camps and posts, disposal of carcasses have also to be attended to. The destruction of fly breeding areas, control of adult flies by fly sprays, fly baits and poisons specially provided are to be undertaken. Special attention is to be paid to ensure that the area vacated after occupation by troops or animal transports has been left scrupulously clean, otherwise this becomes a permanent source of danger to the troops coming there afterwards.

The quantity of ration, maintenance of a variety of ration, food preservation, cleanliness of kitchen, storage of food in flyproof receptacles and supervision of method of cooking and

distribution of food attended to. This includes cleaning of cooking utensils, state of tinning, disinfection and cleanliness of *chowkas,* dining tables, chopping blocks, grease traps, provision and cleanliness of *jharans,* sufficiency of water supply, purification, storage, distribution and periodical cleanliness of reservoir, tanks, water carts, *pakhals,* cleanliness and purity of ærated water, ice, as also milk supply supervision. Disposal of nightsoil, urine, sullage water, organic refuge, kitchen garbage, offal, inspection of latrines and incinerators, refuge pits, grease traps and soakage pits periodically inspected.

The site of selection of camps and bivouacs and the sanitary condition of the locality about to be occupied should be available from previous records. This also includes advice regarding the purification and distribution of water for drinking purposes and arrangements and disposal in respect of latrines, urinals, burials of the dead and disposal of refuge and carcasses of animals. Co-operation with the authorities of existing medical arrangements, sanitary officers of towns, municipalities, port sanitary officers with a view to take note of existing drawbacks peculiar to an area, any prevalence of endemic diseases and prevention of introduction of infectious diseases from transports have to be gone into. Arrangements of segregation of infectious diseases and contacts will be helpful in the checking of further spread of the infection. Highest perfection can be attained if officers realise their responsibility and give every assistance in their power to carry out instructions issued to them, regarding improvement of the health of the troops. It is of utmost importance to impress upon the medical officers to attain and maintain the highest possible sanitary standard both in camp and in the line of march and bringing to the notice of the superior authorities, any neglect of sanitary measures which are likely to undermine the health and efficiency of the troops.

UNITED STATES PSYCHOLOGISTS AT WAR

Psychological work for the United States armed forces is the dominant interest at the present time. In World War 1, the United States Army was a pioneer in the large scale use of intelligence tests and rating scales. In the present war, the evidence indicates that Germany made extensive psychological preparation both in the area of testing and in the area best known as psychological warfare. Before 1939, at least 200 psychologists were used by Germany's armed forces and in 1940 that country reported a marked shortage of psychological personnel. At the present time in the United States there are probably not less than 500 psychologists conducting research for the armed forces or administering a wide variety of tests. This work is done for the Army, the Navy and the Air Forces both by civilians and by commissioned and enlisted personnel, an excellent background having been laid in one instance by psychological work for the Civil Aeronautics Authority before this country entered the war. The methods and results of such current research are military secrets; but the expansion which is steadily going on, indicates the practical value of psychological work. Much of the research is being done in university laboratories by non-military psychologists at the request of governmental agencies. And much psychological service related to the emergency is done by civilian agencies of the government. There is a rapidly developing shortage of trained psychologists. The American Psychological Association, at the request of the Emergency Committee in Psychology, has established an Office of Psychological Personnel with a full time director and office staff. The office has proved invaluable as a liaison with governmental agencies, and as a central agency for information and placement—*News Letter, Am. M. A.*

DEHYDRATED FOODS IN BRITAIN

The demand for dried food, principally arising from a shortage of shipping space has led the Ministry of Food in Britain to encourage dehydration of raw meat, vegetables and other food stuffs on a large scale. The extent of the demand is clearly exemplified in the fact that recently some 20,000 tons of hydrated butter have been ordered by the British Government from New Zealand. A large dehydration plant for drying and packing vegetables has been installed in London to meet this growing demand of dried foods.

Various dehydration methods are now in operation. The method followed by H. J. Heinz & Co., Ltd., in co-operation with the Ministry of Food, is capable of turning out 9 tons of dried potatoes from 80 tons of the same every week without any loss of nutritious value. The process consists in peeling off the skin of the potatoes with a machine lined with carborundum. The eyes are then extracted and the stuff cut into strips before they are subjected to boiling. The necessity of boiling is to inhibit the action of the enzymes and ensure good preservation. Drying is secured either by passing hot air over trays of potato strips, or by allowing the stuff to travel on a moving belt with hot air blowing through it, when the strips come out in the form of crisps and flakes. The temperature should be between 65°C to 88°C. The tins in which dried foods are to be packed should preferably contain nitrogen instead of air as they keep better in the atmosphere of inert nitrogen—*Science & Culture.*

BENGAL COUNCIL OF MEDICAL REGISTRATION

The following is the result of scrutiny of voting papers in connection with the recent Bengal Council of Medical Registration re-election.

Dr. A. K. Chakrabarty—574 votes; Dr. Benoy Sinha—554 votes; Dr. T. N. Ghosh—519 votes; Dr. Kabir Hossain—267 votes.

The first three candidates have been declared duly elected.

MILK FROM VIRGIN GOATS

Under the caption "Milk from Virgins" the July issue of *Monthly Science News* publishes a note how Dr. S. J. Folley and his colleagues at the National Institute for Research in Dairying at Shinfield have recently succeeded in making virgin goats produce milk and demonstrate the superfluity of the usual process of mating. This somewhat peculiar result is reported to have been achieved by treating virgin animal with diethylstilbœstrol and hexœstrol—synthetic alternatives to sex hormones, first prepared by Prof. E. C. Dodds. The basis of such treatment is the knowledge gained recently through researches that hormones from two glands, the ovaries and the anterior pituitary glands, are mainly responsible for the development of the mammary glands of the animals and the production of milk. It has been found that the hormones from the latter gland are indispensable for starting and maintaining the flow of milk. A definite knowledge as to whether sex hormones act directly on the mammary glands, or simply stimulate the anterior

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